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CONTENTS.

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TRANSACTIONS OF THE SOCIETY FOR BRITISH ENTOMOLOGY

VOL. 14 APRIL 1961 PART VIII

A Revised Summary of the Known Distribution of British Orthopteroids

By D. Keith McE. Kevan

(Professor of Entomology, McGill University, Macdonald College P.O., Que., Canada)

A few years ago the author published a summary of the known distribution of British Orthopteroids (Kevan, 1952) based upon records published up to that date in the *Entomologist's Monthly Magazine, The Entomologist, The Entomologists' Record* and other journals, and in the appropriate parts of the *Victoria County Histories* and various local lists, etc. Much information was also obtained by reference to the works of Lucas (1920) and Burr (1936) and from earlier publications devoted to the study of British Orthopteroids. Previously unrecorded vice-county records were also included.

Since the original *Summary* was published, a considerable interest in orthopteroid orders has developed[1]. Many additional records have been published and several corrections made; these have been brought together from time to time in a number of supplements (Kevan, 1953; 1953a; 1954; 1956). A revised summary is now presented in order that the present general picture can be seen without cross-reference to a number of publications. Several new or interesting records, both original and published, which have added to our knowledge of distribution since the last supplement (Kevan, 1956), are included. The vice-county system of recording has again been followed, in spite of the drawbacks (such as lack of ecological considerations) inherent in this system, partly for the sake of uniformity and partly because the Orthopteroids are still scarcely well enough known for any other general method to be adopted. An explanation of the vice-county numbers used will be found in the original *Summary*. Little attempt has been made to indicate where changing environment may have rendered some species extinct, or nearly so, in certain vice-counties. Indeed it might be unwise to do this in view of the fact that species sometimes turn up after long intervals, as in the case of *Decticus verrucivorus*. The indication of such changes is more the concern of individual

[1]In spite of the not uncommon, but regrettable views regarding the interest attached to the study of British Orthopteroids (quoted by An Old Moth Hunter, 1959) which still seem to prevail among collectors of the old school.

county lists and of papers dealing with individual species than it is of a general summary such as the present.

As with the original *Summary,* in addition to native insects, those listed herein include alien species which have bred, or are believed to have bred at least temporarily (even under artificial conditions), in the British Isles and the Channel Islands. Casual visitors which have been imported (for example, with fruit or vegetables), or which have immigrated of their own accord (for example, certain species of locust), have been omitted, except where there is evidence of their progeny having survived for at least a short time.

Since the last supplement was published (Kevan, 1956), two local lists have appeared, namely for Wiltshire (Kevan, 1957) and for the London area (Payne, 1958a). Attention should also be drawn to the fairly recent publication of a revised edition of the Royal Entomological Society of London's *Handbook* on the orders concerned (Hincks, 1956)—since this is very much more up-to-date in matters of nomenclature and distribution than its predecessor (Hincks, 1949)—and to the valuable contribution on the immature stages of Devonshire Tettigonioids recently published by Richards (1958). This latter includes a key to nymphs.

As in the past, I am much indebted to various friends and acquaintances for many of the new records given below. Where no other indication is given, the records are my own. Species marked with an asterisk are aliens.

Order DICTYOPTERA
Suborder BLATTODEA
Fam. BLATTIDAE
Subfam. BLATTINAE

**Periplaneta australasiae* (Fabr.), Australian Cockroach. England: 1, 9, 11, 12, 14, 17, 21, 23, 25, 29, 33, 34, 54, 56, 57, 59, 60, 63, 64, 67; Wales: 41; Scotland: 76, 83, 87; Ireland: 21, 39. It is difficult to assess which records represent breeding colonies, but since this is a not uncommon species in large glasshouses, the majority probably do so. Records for England, 25, 33, 34, 54 and 67, however, seem to refer to casual specimens only. Brett (1957) records recent crop damage under glass (specimens collected by Ministry of Agriculture inspectors), but localities are not given.

**Periplaneta americana* (L.), American Cockroach. England: 1-3, 6, 11, 15-18, 21, 27-29, 33-35, 39, 56, 57, 59-61, 63, 64, 70?; Wales: 41; Scotland: 76, 77, 83; Ireland: 21, 39; Channel Is. (Guernsey). Most of the records probably refer to breeding colonies since the species is (or was) common at sea-ports, in large glasshouses and in some coal mines. The previous inclusion of England 62 in the recorded distribution seems to be erroneous; v.c. 70 may refer to the previous species and v.c. 27, 28, 33 and 34

are probably casual records only. Jefferson (1958) has recently recorded an interesting white-eyed mutant form from a deep coal-mine in Glamorgan (v.c. 41).

**Blatta orientalis* L., Oriental Cockroach. England: recorded (at least by inference) from every vice-county except 5, 24, 26, 31, 36 and probably 68; Wales: 41, 49; Scotland: 72-77, 82-86, 90, 92, 99, 111[1]; Ireland: 21, 34, 35, 37; Isle of Man; Channel Is. (Jersey, Guernsey). The species is recorded from the Scilly Is.; records from England 7 and 8 (Wiltshire N. and S.) are recent (Kevan, 1957); those from Scotland 73 and 74 are new (Kircudbrightshire, Newton Stewart, in a shop, 9.viii.1957, 1 ♀; Wigtownshire, Stranraer, in a bakery, 13.viii.1951, 1 ♀).

Fam. BLABERIDAE
Subfam. EPILAMPRINAE

[**Nauphoeta cinerea* (Ol.), Grey Cockroach. England: 17 or 21 (London). Temporarily established under glass?]

**Pycnoscelus surinamensis* (L.), Surinam Cockroach. England: 11, 13, 17, 18, 23, 59, 64; Scotland: 77, 83.

It is difficult to assess how many of the records of this species refer to established colonies, past or present, but many of them certainly do so. The species is not uncommon in some large, tropical glasshouses. The most recent records are of specimens under glass collected by Ministry of Agriculture inspectors, localities not given (Brett, 1957), and from a municipal conservatory in northern England, presumably S. Lancashire (Goodliffe, 1958).

Fam. PSEUDOMOPIDAE
Subfam. PSEUDOMOPINAE

**Blattella germanica* (L.)[1], German Cockroach. England: 1, 3, 4, 7-17, 19, 21-23, 25, 27-29, 32, 34, 38, 39, 41-60, 62-64, 66-67, 70; Wales: 41; Scotland: 76, 77, 83, 93, 94; Ireland: 19, 21, 37-39; Channel Is. (Guernsey). England, 7 and 8 (Wiltshire, N. and S.) are recent records (Kevan, 1957); Northumberland N. (v.c. 68) is also probable but requires confirmation.

[**Supella supellectilium* (Serv.), Brown-banded Cockroach. England: 3. Temporarily established indoors?]

[1]Has also been found in the Faroes (and in Iceland)—see Tuxen (1938).

[1]The name *transfuga* (Brünn.) has priority. An application by Dr. K. Princis and myself to the International Commission on Zoological Nomenclature made some years ago has still not received attention. Unfortunately, this name does not fall as a result of the new Statute of Limitations since this is not retroactive and the name *transfuga* has been used by Ander (1945; 1953).

Subfam. ECTOBIINAE

Ectobius (*Ectobius*) *lapponicus lapponicus* (L.), Dusky Cockroach. England: 2-4, 7-14, 17, 18, 24, 32; Channel Is. (Jersey; possibly from Guernsey and Alderney—see below). V.c.s 7 and 8 (Wiltshire N. and S.) are recent records (Kevan, 1957). Ab. *blairi* Kevan occurs in Dorset (v.c. 9) but its further distribution is unknown (see Kevan, 1953b).

Ectobius (*Ectobius*) *pallidus pallidus* (Ol.), Tawny Cockroach. England: 1-4, 9, 11, 13-17, 21, 22, 28; Wales: 41; Channel Is. (Guernsey, Alderney). The Channel Island records need confirmation and may refer to the last species (see Kevan, 1954).

Ectobius (*Ectobius*) *panzeri* Steph., Lesser Cockroach. England (mainly coastal): 1 (incl. Scilly Is.), 2-4 (incl. Lundy), 6 (Steepholm only), 9-11, 13-15, 17-19, 25, 27?, 28; Wales: 44, 45, 52; Channel Is. (Guernsey, Alderney). An erroneous record of the species from West Kent (v.c. 16) has recently been corrected by Payne (1958a). Ab. *nigripes* Steph. has been recorded for England from v.c.'s 1-3, 9-11 and from Essex (?N., v.c. 19), and from Wales for v.c. 45.

Order EMBIOPTERA

Fam. OLIGOTOMIDAE

[**Oligotoma michaeli* McLach., Michael's Web-spinner. England: 21 (London). Temporarily established under glass only.]

Order PHASMATODEA

Fam. LONCHODIDAE

Subfam. CLITUMNINAE

**Acanthoxyla prasina* (Westw.), Prickly Stick-insect. England: 1 (Scilly Is.), 3 (Paignton). Well established outdoors.

Subfam. LONCHODINAE

**Clitarchus hookeri* (White)[1], Smooth Stick-insect. England: 1 (Scilly Is.). Established outdoors.

**Carausius morosus* Brünner[2], Laboratory Stick-insect. England: 3 (Torquay), 17 (Kew). An "escape" under glass.

[1]Previously recorded under the name *laeviusculus* Stål, but see Salmon (1955) who uses the name *hookeri*, apparently in anticipation of his revision of the genus referred to by Uvarov (1950) when the latter first recorded the species from the Scilly Is.

[2]This is the species that many physiologists persist in referring to as *Dixippus*.

Order ORTHOPTERA (*s.str.*) [SALTATORIA]
Suborder ENSIFERA
Superfam. GRYLLACRIDOIDEA
Fam. RHAPHIDOPHORIDAE
Subfam. RHAPHIDOPHORINAE

**Tachycines asynamorus* Adel., Greenhouse Camel-cricket. England: 6, 14, 17, 18, 21, 25, 26, 29, 55, 58; Wales: 41; Scotland: 72, 75, 77, 83. Under glass.

[**Dolichopoda bormansi* Brunner, De Borman's Camel-cricket. England: 17 (Kew, under glass). It is doubtful if this species ever became established.]

Superfam. TETTIGONIOIDEA
Fam. MECONEMATIDAE

Meconema thalassinum (DeGeer), Oak Bush-cricket. England: 1-30, 32-34, 37-40, 54, 56, 59, 63, 70; Wales: 41, 45, 46, 48; Ireland: 8; Channel Is. (Jersey). The record for Cardigan (v.c. 46) is recent (Ryle, 1959). The early Scottish records (v.c.'s 83 and 90) are too unreliable to be taken seriously (see footnote, p. 195).

[**Phlugiolopsis henryi* Zeuner, Henry's Bush-cricket. England: 17 (Kew). I have no evidence that this glasshouse species is still to be found.]

Fam. TETTIGONIIDAE
Subfam. TETTIGONIINAE

Tettigonia viridissima L., Great Green Bush-cricket. England: 1 (incl. Scilly Is.), 2-6, 8-29, 31-35, 38?, 55-57, 64?, 68?, 70?; Wales: 41, 45; Channel Is. (Jersey, Guernsey). The records from the north of England need confirmation, that from Yorkshire gives no precise locality; the ancient Scottish record (v.c. 90) is too unreliable to be taken seriously (see footnote, p. 195). Professor L. A. Harvey (*in litt.*, 1956) confirms that *T. viridissima* is not uncommon throughout the Scilly Is., especially on Tresco.

Subfam. DECTICINAE

Decticus verrucivorus (L.), Wart-biter Bush-cricket. England: 9, 11, 14-16. It is interesting to note that this species has again been found in the Corfe Castle locality Dorset (v.c. 9) by Mr. B. C. Pickard and Dr. D. R. Ragge (8.viii.1956; personal communication from Dr. Ragge). The species has long been extinct in West Kent (v.c. 16); Payne (1958a) does not refer to the early Rochester record, but cf. Lucas (1920). The brown ab. *bingleyi* (Curtis) is recorded from v.c.'s 9 and 11, but presumably occurs wherever the species is found.

Pholidoptera griseoaptera (DeGeer), Dark Bush-cricket. England: 1-38, 53, 54, 56-58, 62; Wales: 41, 44, 45; Channel Is. (Jersey). The recent record from v.c. 62 (N.E. Yorkshire, Robin Hood's Bay) is by far the furthest north for the species (McDermott, 1957). Unfortunately, the specimen (a male) was not preserved, but Miss McDermott (*in litt.,* 1957) assures me that there was no mistake in identification, since she is quite familiar with the species further south. Ryle (1959) reports an interesting greenish colour variation from Monmouthshire (v.c. 35).

Platycleis (*Platycleis*) *denticulata denticulata* (Panz.), Grey Bush-cricket. England: 1 (incl. Scilly Is.), 2-4, 9-11, 13-16, 18, 19, 38; Wales: 41, 45, 49. The record for the Scilly Is. appears to be new (Bryher, ix.1956, 1♂, 3♀; *L. A. Harvey*); all belong to a small local race comparable in size and in shortness of the tegmina with the next subspecies, but the ovipositor of the females is like that of subsp. *denticulata.* This species is very prone to local variation (see Ander, 1949). Size does not appear to be a good criterion for separating this subspecies from the next, since female specimens of subsp. *jerseyana* from Mill Brook, Jersey (1.ix.1955, *C. E. Taylor*) are of a size comparable with that of mainland *denticulata*; they differ principally in the shape of the ovipositor.

Platycleis (*Platycleis*) *denticulata jerseyana* Zeuner, Jersey Bush-cricket. Channel Is. (Jersey, Guernsey, Sark, Herm). The new record for Herm comes from Miss Vere Temple (*in litt.,* 1957) who took it there (and at Moulin Huet Bay, Guernsey) in September 1956.

Metrioptera (*Metrioptera*) *brachyptera* (L.), Bog Bush-cricket. England: 1-3, 6-9, 11-17, 22, 24, 27-30, 38-40, 54, 57, 58, 60-64, 70; Wales: 41, 46, 49, 50 (detached part of Flint only); Scotland: 72. The records for Wiltshire (v.c.'s 8 and 9) and Cardigan (v.c. 46) are recent (Kevan, 1957; Ryle, 1959); that for Warwickshire (v.c. 38) is new (near Stonebridge, viii.1957, 1 ♂, 1 ♀, from a colony, *G. Linder*—Mr. F. Fincher, *in litt.,* 1958). Mr. P. F. Baker (*in litt.,* 1957) informs me that the species has again been taken near Woodhall Spa, N. Lincolnshire (v.c. 54) after an interval of 16 years. Form *marginata* (Thunb.) is known from England 3, 17 and 22. The publication of the record for Berkshire is fairly recent; Swain (1956) indicates that the specimen (taken in 1941) is the only known British macropterous male. In this he appears to be correct, although his statement is presumptuous, since the sex of the specimens referred to by myself (Kevan, 1953) was not given. Professor L. A. Harvey, who is responsible for this latter record, however, informs me (*in litt.,* 1957) that he believes all were females, although some of the specimens have now been mislaid. The most recent record (for S. Devon—see Richards, 1958) is also of a female.

Metrioptera (*Roesseliana*) *roesseli* (Hagen), Roessel's Bush-cricket. England: 10, 15-19, 21?, 25, 29, 54, 61. Mainly coastal. The record for Middlesex (v.c. 21) is very dubious, being based only on Stephen's early record from Hampstead (?), cited by Lucas (1920) and referred to by Payne (1958a). This record was overlooked in the original *Summary*. Mr. P. F. Baker (*in litt.*, 1957) records the species again for Lincolnshire N. (v.c. 54) after an interval of 20 years (Scot Grove and Wood Bardney, 1957). This is only the second record since the single one in 1888, so that the species may yet be rediscovered in Cambridgeshire (v.c. 29) and will doubtless turn up in Lincolnshire S. (v.c. 53), although there appears to be no record from the latter. The macropterous f. *diluta* (Charp.) is now known from England 17-19 and 25.

Fam. CONOCEPHALIDAE
Subfam. CONOCEPHALINAE

Conocephalus (*Xiphidion*) *discolor* (Thunb.), Long-winged Cone-head. England: 9, 10, 13-15; Channel Is. (Jersey). Coastal in England. Pickard (1956) has recently recorded this species from localities linking those previously known for Dorset.

Conocephalus (*Xiphidion*) *dorsalis* (Latr.), Short-winged Cone-head. England: 3, 4, 6, 9-11, 13-19, 25-30, 53, 61; Wales: 41, 46, 48, 52. Mainly coastal. The records for Cardigan and Anglesey (v.c.'s 46 and 52) are recent (Ryle, 1959). The occurrence in Lincolnshire S. (v.c. 53) is a new record (Leverton, near Frampton, feeding on *Senecio jacobaeae* L., 19.ix.1951.—Mr. P. F. Baker, *in litt.*, 1957). The macropterous f. *burri* Ebner is known from England, 16, 19, 25 and 27.

Fam. PHANEROPTERIDAE
Subfam. PHANEROPTERINAE

Phaneroptera falcata (Poda), Sickle-bearing Bush-cricket. England: 1, 9? Only a single specimen and a dubious sight record, but, in view of the rarity with which some species of Orthoptera are taken, it is not justifiable to discard these records.

[**Phaneroptera nana nana* Fieber, Dwarf Bush-cricket[1]. England: 58. Temporarily established in a vinery (cf. Lucas, 1920)].

Leptophyes punctatissima (Bosc.), Speckled Bush-cricket. England: 1-4 (incl. Lundy), 5-31, 33-36, 53, 54, 56, 63; Wales: 41, 46, 48, 49; Scotland: 74; Ireland: 1, 5, 21; Isle of Man; Channel Is. (Jersey). Cardigan (v.c. 46) is a recent record (Ryle, 1959). Ireland, 3 and 4, have not been confirmed (see Kevan, 1956). For Lincolnshire, this species was last recorded in 1950 from Kirkby-la-Thorpe, but Mr. P. F. Baker (*in litt.*, 1957) states that neither he, nor his father, Mr. F. C. Baker, who have made a

[1]Previously recorded as *Ph. quadripunctata* Brünner (Four-spot Bush-cricket), but see Ragge (1956) for synonymy.

special search for the species have discovered it in the county. Mr. Baker is of the opinion that it must only occur in very small localised colonies.

Fam. GRYLLIDAE

Subfam. GRYLLINAE

Gryllus campestris L., Field Cricket. England: 1, 2, 3?, 4, 8? or 9, 10-14, 18?, 26?, 27, 28, 38?, 39, 53, 57?; Channel Is. (Jersey). The early records from Scotland, 83 and 90, are too unreliable to be taken seriously (see footnote, p. 195). Nearly all recent records are from the south of England and even there the species is much scarcer than in former times—see Pickard (1956a) and Ragge (1956a). It is not known whether the species is known from Wiltshire S. (v.c. 8) or from Dorset (v.c. 9); it is not recorded from both (see Kevan, 1956).

**Acheta domesticus* (L.), House Cricket. England: recorded or inferred from every vice-county except 24, 31, 35, 36, 40 and 69; Wales: 41, 48, 49; Scotland: 72-77, 83, 90; Ireland: 1, 27, 33, 34; Isle of Man; Channel Is. (Jersey, Guernsey). The records for Wiltshire (v.c.'s 7 and 8) are recent (Kevan, 1957); those for Scotland, 73, 74 and 75 are new (Kirkcudbrightshire, Newton Stewart, in house, 12.viii.1957, 1 ♂; Wigtownshire, Stranraer, in a bakery, 13.viii.1957, 1 ♀; Ayrshire, Prestwick, in an hotel, 21.viii.1958, observed but not captured). The record for Scotland, 74, given in the original *Summary* was an error for 72.

**Gryllodes sigillatus* (Walker), Tropical House-cricket. England: 17 (Kew, under glass). It is not known whether this colony is still in existence; the species is a common adventive.

Subfam. NEMOBIINAE

Nemobius sylvestris (Bosc.), Wood Cricket. England: 1?, 3, 8-11, 37?; Channel Is. (Jersey). V.c. 57 (Derbyshire) has also been cited, but scarcely seems probable.

Fam. MOGOPLISTIDAE

Mogoplistes squamiger Fisch., Scaly Cricket. England: 9 (shore, under stones).

Fam. GRYLLOTALPIDAE

Gryllotalpa gryllotalpa L., Mole Cricket. England: 1-4, 7, 9-14, 16-19, 22, 23, 27-30, 34, 38, 39, 54, 57, 59; Wales: 41, 44, 45; Scotland: 76, 90?, 99; Ireland: 40; Channel Is. (Jersey, Guernsey). Because of its burrowing habits, it is very difficult to assess how near to extinction this species is in some of its former haunts; certainly it is very rarely encountered nowadays except in the south of England, where it is less rare than has been supposed and where it may even be injurious to plants (see Ragge, 1955),

and in the Channel Is. Whether it ever bred as far north as Angus (v.c. 90), as the ancient record suggests, is doubtful[1], although it was evidently quite widespread in former times and has occasionally been recorded from the west of Scotland. The brachypterous f. *cophta* (de Haan) has once been recorded from W. Cornwall (v.c. 1); how reliably is uncertain.

Suborder CAELIFERA

Superfam. TETRIGOIDEA

Fam. TETRIGIDAE

Subfam. TETRIGINAE

Tetrix ceperoi (Bol.). Cepero's Ground-hopper. England: 1, 2, 4, 9-11, 15, ?29; Wales: 41; Channel Is. (Jersey, Guernsey). It is conceivable that records from certain other vice-counties may refer to this species (see below).

Tetrix subulata (L.), Slender Ground-hopper. England: 2-11, 12?, 13, 14?, 15-24, 25?, 26-31, 33?, 37, 53?, 54; Wales: 41; Ireland: 8?, 17; Channel Is. (Jersey). V.c.'s England 12, 14, 25 and 33, and Ireland 8 are included on the strength of records published before *T. ceperoi* was recognised as British (see Kevan, 1952, for further comments). Guernsey remains unconfirmed. The records from Lincolnshire S. and N. (v.c.'s 53 and 54) are new—Can Dyke, near Potter Hanworth, vii.1957, nymphs only; and near Langworth, Barlings Gravel Pits, 25.iv.1953, a flourishing colony kept under observation since this date (Mr. P. F. Baker, *in litt.*, 1957). Mr. Baker notes that this colony, the most northerly known in Britain, is separated from others of the species by many miles; it contains all gradations of form to the short f. *bifasciata* (Herbst.). This form is the now known from England 9, 20, 23, 24, 28, 29, 31 and 54; Wales 41; and Ireland 17. The typical form is not yet recorded from Wales or Ireland.

Tetrix undulata (Sowerb.). Common Ground-hopper. England: every vice-county except 35 and 68; Wales: 41, 43-45, 47-49, 52; Scotland: 72-75, 85, 87-90, 95-102, 105, 106?, 107, 108?, 109-111; Ireland: 1, 3, 12, 16, 22, 27, 37; Isle of Man; Channel Is. (Jersey). The record for Wiltshire S. (v.c. 8) is recent (Kevan, 1957), as are those for Carmarthen (v.c. 44), Caernarvon

[1]Burr (1936) gives Don (1813) the benefit of the doubt regarding the occurrence of this and other species in Angus, but it seems likely that, except where he made comments, Don merely listed every species alleged to occur in Scotland at the time (repeating, also, misidentifications), implying that they all occurred in Angus whether he knew that they did so or not. His list, like that of C. Stewart before him, included such unlikely insects as *Gryllus* [*Oedipoda*] *caerulescens* and *G.* [*Psophus*] *stridulus*. It is, therefore, impossible to confirm or deny his record for the mole cricket.

(v.c. 49), and Anglesey (v.c. 52) (Ryle, 1959)[1]; those for Montgomery (v.c. 47) and Wigtownshire (v.c. 74) are new—Llanidloes, x.1956, 1♀ nymph (*C. A. Collingwood*); near Mochrum Loch, 10.viii.1957, 1 ♀. The species has not been recorded from Derbyshire (v.c. 57) for many years, so it may be of interest to note that it was taken on the Society for British Entomology's field excursion to Chee Dale, 28.vii.1957—1 ♂ (*G. C. Varley*). Form *macroptera* Haij is known only from Scotland 96.

Superfam. ACRIDOIDEA

Fam. ACRIDIDAE

Subfam. ACRIDINAE

Tribe OEDIPODINI

Locusta migratoria L. Locust. Channel Is. (Jersey). I include this species solely because immigrants on one occasion are known to have laid eggs which hatched and produced nymphs (see Uvarov, 1949). There appears to be little likelihood that these could have reached sexual maturity. Both this subspecies and *L. m. migratoria* L. occasionally stray to the British Isles.]

Oedipoda caerulescens, aff. subsp. *armoricana* Sellier, Blue-winged Grasshopper. Channel Is. (Jersey, Guernsey). There is also a single old record of *Oe. caerulescens* from High Town, St. Mary, in the Scilly Is., but this may be open to doubt. Prof. L. A. Harvey (*in litt.,* 1957) states that although he has made a preliminary, and somewhat cursory, search for the species, he has not succeeded in finding it in any of the islands he has visited.

Stethophyma grossum (L.)[1], Large Marsh Grasshopper. England: 2, 6, 9, 11, 17? (extinct), 21? (extinct), 22, 25?, 27-29, 31; Ireland: 1-3, 16, 21, 27. The species is possibly extinct in v.c.'s, England 25 (dubious in any event), 29 and 31 and in Ireland 21. Payne (1958a) suggests that the old record from "the marshes close to London" might refer either to the south bank of the Thames (v.c. 17) or to the north (v.c. 21).

Tribe TRUXALINI

Stenobothrus (*Stenobothrus*) *lineatus* (Panz.), subsp.?, Stripe-winged, or Lined, Grasshopper. England: 1-4, 7-17, 20, 22-24, 27-30, 33, 34, 36. The records for Wiltshire N. (v.c. 7), Buckinghamshire (v.c. 24) and Norfolk W. (v.c. 28) are recent (Kevan,

[1]Ryle also records the species as new for Merioneth (v.c. 48), but it has previously been recorded thence (*Ent. mon. Mag.*, **63**: 259).

[1]This species is most frequently referred to as *Mecostethus grossus*, but the generic name is more properly applied to species usually placed in the genus *Parapleurus*—see Roberts (1941) for discussion of these names.

1957; Buck, 1958; Payne, 1958; 1959). The suggestion (Kevan, 1952) that the species may have been known previously from Buckinghamshire was not confined (*cf.* George, 1955a).

Omocestus rufipes (Zett.), Woodland Grasshopper. England: 1, 4, 5?, 6-9, 11-17, 18-19?, 20, 22-26, 29, 30, 33, 34; Wales: 44. The former more northerly records of this species must be rejected and several of those remaining may be open to question (Pickard, 1956); the Essex record is particularly doubtful (see Kevan, 1956). The record for Wiltshire N. (v.c. 7) is recent and the occurrence of the species in Wiltshire S. (v.c. 8) has been confirmed (Kevan, 1957).

Omocestus viridulus (L.), Common Green Grasshopper. England: every vice-county except 35; Wales: every vice-county except 43 (recorded from Skokholm); Scotland: every vice-county except 93?, 94, 105, 107, 109, 112; Ireland: 2, 3, 8, 16, 20-23, 27 (inc. Achill I.), 30-34, 37; Isle of Man. Wiltshire S. (v.c. 8) has recently been confirmed (Kevan, 1957); Carmarthen (v.c. 44) and Cardigan (v.c. 46) are recent records (Ryle, 1959); Ebudes Mid (v.c. 103) and Kirkcudbrightshire (v.c. 73) are new. The former record is from the Isle of Tiree, Reef, in pitfall traps, "machair" ground, grazed, 1957, 4 ♂♂, 3 ♀♀, 1 nymph; ungrazed (airfield): 5 ♂♂, 4 ♀♀, 1 nymph (all *J. Morton Boyd*); there are several records from the latter, viz., Glen Trool, 9.viii.1957, 1 ♂, 1 ♀ (*P. G. & S. M. Kevan*); lower slopes of Bennan above Loch Trool, 11.viii.1959, many ♂♂ and ♀♀; Loch Ochiltree, 12.viii.1957, 1 ♀; Newton Stewart, 15.viii.1957, 1 ♀; Glen Trool, heights above Caldons, Mulbdonnach summit, c. 1700 ft., Curley Wee summit, c. 2,212 ft., Nick of the Lochans on Curley Wee, 16.viii.1957, many ♂♂ and ♀♀; Woodhall Loch and near Holland Island, 18.viii. 1957, several ♂♂ and ♀♀; by Loch Ken (east shore, half way along), 18.viii.1957, 1 ♀; Glen Trool, Gaerland Burn, 21.viii.1957, 1 ♂, 1 ♀. Since records from S.W. Scotland are very few, the following may also be noted—Wigtownshire (v.c. 74): coast near Auchenmalg, 10.viii.1957, 1 ♂, 1 ♀ (*M. K. Kevan*); Mochrum Loch, Fell Loch and Loch Hempton, 10.viii.1957, several ♂♂ and ♀♀ (*P. G., M. K., & S. M. Kevan*); near Glen Luce, 10.viii.1957, 1 ♀; near Fort William, 10.viii.1957, 1♂; Berhaskine and Challochglass Moors above Castle Loch, and Whitfield Loch, 10.viii. 1957, many ♂♂ and ♀♀; Central Galloway Peninsula, Marklan Hill, 13.viii.1957, 1 ♀; Kevan's Burn, Whithorn, and I. of Whithorn, 15.viii.1957, several ♀♀; Burrow Head, 18.viii.1957, 1 ♀; Mull of Galloway, 17.viii.1957, 1 ♀; South Ayrshire: near Barrhill, 12.viii.1957, 1 ♀; West Loch Doon, 20.viii.1957, 1 ♂, 1 ♀. Other recent Scottish records (not new) are from Stirlingshire (v.c. 86): Aberfoyle road, south of River Forth, 16.ix.1957, 2 ♂♂, 2 ♀♀ (*H. M. Whitmore*); Perthshire (v.c. 87): Aberfoyle, 16.ix-1957, 2 ♂♂, 2 ♀♀ (*H. M. Whitmore*). Records from the Isle of Man are scarce; the following are of insects caught on aphid sticky-traps: Upper Garth, 24.vi.1957, 1 ♂; Knockaloe, coastal

slope, 29.vii.1957, 1 ♂. Records from Derbyshire (v.c. 57) are also few, so that it might be worth recording that several males, female and nymphs were taken in Chee Dale on the occasion of the Society for British Entomology's excursion, 28.vii.1957. Burton (1959) gives recent records for the little-worked counties of Brecon (v.c. 42) and Hereford (v.c. 36); he notes that those from the former were of the same bright green form as noted previously by Burr (1936). I have not seen any of these specimens, but it seems unlikely that they would be in any way peculiar; many Scottish specimens from humid localities appear to be considerably brighter in colour than those from eastern and southern England.

Myrmeleotettix maculatus (Thunb.), Mottled Grasshopper. England: every vice-county; Wales: every vice-county except 43 and 51; Scotland: 72-75, 77-90, 92, 93?, 94-96, 99, 102, 104, 105, 107?, 108, 109, 110; Ireland: 3, 16, 20; Isle of Man. The record for Wiltshire N. (v.c. 7) is recent (Kevan, 1957); those for Kirkcudbrightshire (v.c. 73) and Wester Ross (v.c. 105) are new—Glen Trool, heights above Caldons, 16.viii.1957, 1 ♀; Strome, vi.1956, 1 ♀ (*C. A. Collingwood*). Records from S.W. Scotland are very few so that it might be worth noting a recent record from Wigtownshire (v.c. 74): Mochrum Loch, 10.viii.1957, 1 ♂ (*S. M. Kevan*), and one from S. Ayrshire: Loch Dornal, 12.viii.1957, 1 ♀. It is also worth noting that although this species was recorded in 1872 from the Scilly Is. (*cf.* Lucas, 1920), Prof. L. A. Harvey (*in litt.*, 1956; 1957) informs me that he has been unable to discover it on any of the islands he has visited; *Chorthippus brunneus* (Thunb.) is, however, very common although it does not appear to have been recorded so far. There may thus be a case of mistaken identity.

Gomphoceripus rufus (L.), Rufous Grasshopper. England: 1-4, 6, 9, 11, 13-17, 22, 23, 33, 34; Wales: 41.

Chorthippus (*Glyptobothrus*) *vagans* (Eversin.), Heath Grasshopper. England: 9, 11; Channel Is. (Jersey). The range of this species has not yet been extended, but Pickard (1956) records it from between two previously known Dorset localities.

Chorthippus (*Glyptobothrus*) *brunneus brunneus* (Thunb.), Common Field Grasshopper. England: every vice-county (incl. Scilly Is. and Lundy); Wales: every vice-county except 43 and 51 (occurs on Skokholm); Scotland: 72-83, 85, 89, 90, 96, 98-101; Ireland: 1-4, 6-8, 10, 20, 21, 26, 27, 31; Isle of Man; Channel Is. (Jersey, Guernsey, Sark, Herm). The records for Scotland, 73, 75 and 77-80, are new—Kirkcudbrightshire: Loch Ochiltree, 12.viii.1957, 1 ♂; Glen Trool, heights above Caldons, slopes of Mulbdonnach, and Curley Wee, 16.viii.1957, many ♂♂ and ♀♀; Woodhall Loch and near Holland Island, 18.viii.1957, 2 ♀♀; S. Ayrshire: moors near Corwar, 12.viii.1957, 1 ♂, Loch Doon, 20.viii.1957, 1 ♀; S. Lanarkshire: near Elvanfoot, 22.viii.1957,

1 ♀; Peeblesshire: near West Linton, 22.viii.1957, 1 ♂; Selkirkshire: near Galashiels, 27.viii.1957, 1 ♀; Roxburghshire: near Jedburgh, 9.ix.1956, 1 ♂, 1 ♀. Records for southern Scotland seem to be very scarce so that it may be worth noting the following further occurrences of the species in Wigtownshire (v.c. 74): coast near Auchenmalg, 10.viii.1957, 2 ♀♀ (*P. G. Kevan*); Mochrum Loch, Fell Loch and Loch Hempton, 10.viii.1957, several ♂♂ and ♀♀ (*P. G., M. K., & S. M. Kevan*); near Glen Luce, 10.viii.1957, 1 ♀; near Fort William, 10.viii.1957, 1 ♀; Whitfield Loch, 10.viii.1957, 1 ♀; S. Galloway Peninsula, east coast, Auchleach, between Drummore and Sand Head, 17.viii.1957, 2 ♀♀; Port Logan, 17.viii.1957, 1 ♀.

As noted under *Myrmeleotettix maculatus* (above), this species does not seem to have been previously recorded from the Scilly Is. (although it has been from the mainland part of v.c. 1). Prof. L. A. Harvey (*in litt.,* 1956) states that it was almost ubiquitous from sand-dunes to moor and grassland in September 1956; he again notes (*in litt.,* 1957) that it was very common on St. Mary's, Tresco, St. Agnes and St. Martin's in September 1957. Miss Vere Temple (*in litt.,* 1957) gives the new Channel Is. record for Herm, ix.1956; she says that the species is represented there by a dwarf form, which she also found at St. Martin's Point, Guernsey. (Fairly small *Ch. brunneus* occurred everywhere within 2-3 miles of Moulin Huet Bay.) Burton (1959) notes what he conjectures to be an example of "industrial melanism" in this species at Woolwich (v.c. 16), but I would hazard a guess that the dark forms mentioned by him are not genetically determined (as they would be in a case of true industrial melanism), but are comparable with other dark Acrididae such as are found in areas where grass-burning has occurred (cf. Poulton, 1926; Burr, 1928; 1929; Burtt, 1951).

[*Chorthippus* (*Glyptobothrus*) *mollis mollis* (Charp.), Feeble or Sand Grasshopper. Channel Is. (Jersey). Very dubious; records probably refer to abnormal, small *Ch. brunneus*—see Pickard (1955) and reference to Herm specimens above.]

Chorthippus (*Chorthippus*) *parallelus parallelus* (Zett.)[1], Meadow Grasshopper. England: every vice-county; Wales: every vice-county except 43 and 51; Scotland: 72-75, 77-90, 92, 93?, 94, 96-100, 102, 104; Channel Is. (Jersey). The following Scottish vice-county records are new:—Kirkcudbrightshire (v.c. 73): Bennan, above Loch Trool, up to 1,780 feet, 11.viii.1957, numerous ♂♂ and ♀♀ (including some very dark and brightly coloured specimens); Glen Trool, heights above Caldons,

[1]The earlier name *longicornis* (Latr.) is probably applicable to this species, but, since this is uncertain, Zettestedt's name is to be preferred to Latreille's which should be rejected as a *nomen dubium* (see Kevan, 1952).

Mulbdonnach, to summit, c. 1,700 ft., Curley Wee, to near summit, 2,212 ft., and Nick o' the Lochans on Curley Wee, 16.viii.1957, numerous ♂♂ and ♀♀; Glen Trool, Roman Bridge area, 19.viii. 1957, 1 ♂, 1 ♀; Glen Trool, Gaerland Burn, Loch Valley and Loch Nederick, 21.viii.1957, numerous ♂♂ and ♀♀. Wigtownshire (v.c. 74): coast near Auchenmalg, 10.viii.1957, 1 ♀ (*P. G. Kevan*); Mochrum Loch, Fell Loch and Loch Hempton, 10.viii. 1957, several ♂♂ and ♀♀ (*P. G., M. K., & S. M. Kevan*); Barhaskine and Challochglass Moors above Castle Loch and Whitfield Loch, 10.viii.1957, several ♂♂ and ♀♀; Kevan's Burn, Whithorn and Isle of Whithorn, 15.viii.1957, several ♂♂ and ♀♀; Burrow Head, 15.viii.1957, 1 ♀; S. Galloway Peninsula, Ardwell Burn, 17.viii.1957, 1 ♀. S. Ayrshire (v.c. 75): Loch Mayberry, Loch Dornal and near Drumlamford Loch, 12.viii.1957, several ♀♀; moors near Corwar, 12.viii.1957, 1 ♀; W. Loch Doon, 20.viii.1957, 1 ♀. Stirlingshire (v.c. 86): Aberfoyle road just south of River Forth, 17.ix.1957, 1 ♂, 2 ♀♀ (*H. M. Whitmore*). Records from the Western Highlands are rare, so that it may also be worth recording the species again from Westerness (v.c. 97), Ardnamurchan, about 2 miles W. of Glen Borrowdale, 10.viii.1957, 5 ♀♀, 1 nymph (*D. K. Kevan, snr.*), and W. Sutherland (v.c. 108), Stoer, 27.viii.1957, 1 small ♀ (*H. B. N. Hynes*). Reference to Orthoptera from Hereford are also scarce; Burton (1959) gives a recent record of this species from the Welsh border.

The macropterous f. *explicatus* (Sélys) is now known from the following vice-counties:—England: 2, 9, 10, 11, 15, 17, 22-24, 33, 34, 36, 63; Wales: 46. 49; Scotland: 83. The record for Hereford (v.c. 36) (Cradley-West Malvern, viii.1935, 1 ♀, in British Museum) and for Caernarvon (v.c. 49) (foot of Llanbedrog Headland, 8.ix.1954, 1 small ♀, not fully macropterous) are new. The British Museum collection contains several specimens, some of which have been previously recorded, as follows:—E. Cornwall (v.c. 2): Looe, ix.1922, 1 ♀ (*G. C. Chapman*) [the earliest British record]; Surrey (v.c. 17): Colley Hill, no date, 1 ♀ (*B. F. A. Swynnerton*)[1]; Berkshire (v.c. 22): Boar's Hill, no date, 2 ♀♀ (*B. F. A. Swynnerton*); Oxfordshire (v.c. 23): Shabbington, near Thame, no date, 2 ♂♂, 4 ♀♀ (*B. F. A. Swynnerton*); Buckinghamshire (v.c. 24): Oakley, no date, 2 ♂♂, 4 ♀♀ (*B. F. A. Swynnerton*); Gloucester W. (v.c. 34): Chalford, 22.viii.1941, 1 ♀ (*F. W. Niven*); Bichfield area, 16. viii.1938, 1 ♀ (*F. W. Niven*)[1]. Other records from Colley Hill, Boar's Hill (as "Bow's" Hill), Shabbington and Oakley are given by George (1955a).

Chorthippus (*Chorthippus*) *albomarginatus albomarginatus* (DeGeer), Lesser Marsh Grasshopper. England: 1-3, 6, 8-19, 21-29, 31, 37, 53, 54, 58-61; Wales: 49; Ireland: ?. The record

[1]British Museum labels on Swynnerton's specimens bear the date 1955, but this is not the date of capture.

[1]cf. "Brickfields" record quoted by George (1955).

for Wiltshire (v.c. 8) is recent (Kevan, 1957). Inland records are less common than coastal ones; Payne (1959) notes another such from West Suffolk (v.c. 26).

Euchorthippus elegantulus Zeuner[2], Jersey Grasshopper. Channel Is. (Jersey).

Order DERMAPTERA
Suborder FORFICULINA
Superfam. LABIDUROIDEA
Fam. LABIDURIDAE
Subfam. LABIDURINAE

Labidura riparia (Pallas), Tawny or Giant Earwig. England: 9, 10?, 11, 15? This species was called the Great Earwig by C. W. Dale and the Great Shore Earwig by Lucas. It has not been seen wild for many years and may have become extinct. Individuals are occasionally imported in ballast, etc., but these may usually be recognised by their darker colour.

Subfam. CARCINOPHORINAE

[**Anisolabis* (*Anisolabis*) *maritima* (Bonelli), Maritime Earwig. England: 39, 66. Seems to be extinct as a breeding species although a common adventive.]

**Anisolabis* (*Euborellia*) *annulipes* (Lucas), Ring-legged Earwig. England: 1, 3, 15, 17, 21, 34, 39 (extinct), 58; Scotland: 77. Often introduced, this species may not have bred in all the vice-counties listed, but it probably has done so.

Superfam. FORFICULOIDEA
Fam. LABIIDAE
Sub.fam. LABIINAE

**Marava arachidis* (Yersin), Bone-house Earwig. England: 15, 21, 34, 58, 63. Often found as an adventive. It is not known in how many localities breeding colonies exist, but the species probably became established, at least temporarily, in all the vice-counties cited.

[**Labia curvicauda* (Motsch.), Curve-tailed Earwig. England: 62 (York only, now extinct). This species is not infrequently imported, but never seems to have become established, even in the York glasshouse where it appears to have survived for a while.]

[2]Possibly a subspecies of *E. declivus* (Bris.), but until this is properly investigated it is preferable to recognize *elegantulus* as distinct.

Labia minor (L.), Lesser Earwig. England: every vice-county except 24, 32, 40, 67; Wales: 41, 45, 49; Scotland: 72, 76, 82, 83, 85, 90-92, 93?; Ireland: 1, 3, 11, 12, 20, 21, 34, 36, 37; Isle of Man; Channel Is. (Guernsey). The records for Wiltshire (v.c.'s 7 and 8) are recent (Kevan, 1957).

Fam. FORFICULIDAE
Subfam. FORFICULINAE

Apterygida albipennis (Megerle *in* Charp.), Short-winged or Apterous Earwig. England: 15, 16, 17?, 18, 19, 25-27, 29. The record for Surrey is recent; it requires confirmation (see Payne, 1958a).

Forficula (*Forficula*) *lesnei* Finot, Lesne's Earwig. England: 1 (incl. Scilly Is.), 2-4, 6 (Steepholm only), 7-19, 22, 23. Wiltshire N. (v.c. 7) has only recently been confirmed (Kevan, 1957).

Forficula (*Forficula*) *auricularia* L., Common Earwig. So ubiquitous that it would be pointless, even if it were possible, to list those vice counties from which it has *never* been recorded. I have personally observed it at one time or another in almost every vice-county on the mainland of Great Britain, with the exception of Suffolk, Hereford, Monmouth, the southern half of Wales, Caithness, Sutherland E. and Banff. I have also taken it in the northern and southern Ebudes (Eigg, Islay and Colonsay). It is known or recorded from all island groups including several of the Scilly Isles, Lundy, Hilbre I., Skokholm, Anglesey, the Isle of Man, the Clyde islands, Inner and Outer Hebrides (even St. Kilda), Orkney and Shetland (even Fair Isle) [also the Faroes[1]], the Isle of May and the Bass Rock, the Farne Islands, Brownsea Is., the Isle of Wight and almost all of the Channel Islands. The only *published* records for Scotland of which I am aware are for v.c.'s 74-76, 82 (incl. Isle of May and Bass Rock), 83, 84, 90, 92, 96, 98-100 (these, with 75 and 76, only as Clyde, common everywhere), 101, 104 (Eigg, Canna, Sanday, Skye), 110 (N. and S. Uist, Barra, St. Kilda), 112 (Fair I., Lunna). For Ireland there only appear to be definite records for v.c.'s 1, 16, 17, 21, 22, 27 (Clare I.), 35 (Gt. Aran and Tory Is.).

The macrolabic f. *forcipata* Steph. is recorded from the following:—England: 1 (incl. Scilly Is.), 3, 5-11, 15-17, 20, 21, 23, 25, 26, 29, 37, 54, 59, 60, 62, 65-67; Scotland: 72-75, 77-80, 83, 92, 110 (St. Kilda); Isle of Man; Channel Is. (Libou and Chapelle Dom Hue). The records for Wiltshire (v.c.'s 7 and 8) are recent (Kevan, 1957), as are those for Yorkshire N.E. (v.c. 62) (Payne, 1956) and Lincolnshire N. (v.c. 54 (Baker, 1957); those for Hertfordshire (v.c. 20) and Surrey (v.c. 17) were omitted previously by myself (references in Payne, 1958a). The following, for what

[1]Lucas (1920) states that it is absent from Iceland, but it occurs there indoors (see Tuxen, 1938).

they are worth, are new:—England: N.W. Yorkshire (v.c. 65), near Scotch Corner, 8.viii.1957, 1 ♂; Durham (v.c. 66), Langdon Beck, 8.viii.1957, 1 ♂; Northumberland S., (v.c. 72), near Slaggyford, 8.viii.1957, 1 ♂. Scotland: Dumfriesshire (v.c. 72), near Gretna Green, 8.viii.1957, 1 ♂; Kirkcudbrightshire (v.c. 73), near Newton Stewart, 14.viii.1957, 1 ♂; Wigtownshire (v.c. 74), Galloway Peninsula, east coast, 17.viii.1957, 1 ♂; S. Ayrshire (v.c. 75), Loch Mayberry, 12.viii.1957, 2 ♂♂; S. Lanarkshire (v.c. 77), near Elvanfoot, 22.viii.1957, 1 ♂; Peeblesshire (v.c. 78), near West Linton, 22.viii.1957, 1 ♂; Selkirkshire (v.c. 79), near Galashiels, 27.viii.1957, 1 ♂; Roxburghshire (v.c. 80), near Jedburgh, 9.ix.1956, 1 ♂; Midlothian, Edinburgh, Blackford Hill, 7.ix.1956, 1 ♂. Isle of Man: Knockaloe, 29.vii.1957, 1 ♂. Many of these specimens (single representative individuals taken from among more normal material) are not so strongly macrolabic as others.

In conclusion I should like to commend two recent British studies on this common, but rather neglected insect. The first is a more detailed investigation of the life-history under Scottish conditions than has previously been published (Behura, 1956); the second is an interesting report on behaviour and variation in a restricted area (Baker, 1957).

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